

**WHAT IS CLAIMED IS:**

1. A set top box capable of performing wireless transmission, the set top box comprising:

a digital television receiver, which converts a tuned digital broadcasting signal into a first transport stream (TS);

a TS converting unit, which receives at least one of a high definition (HD) image signal input from outside and an external SD image signal input from outside, converts the HD image signal into a standard definition (SD) image signal if the HD image signal is received, and then converts one of the SD image signal and the external SD image signal into a second TS; and

a wireless processing module, which processes one of the first TS and the second TS as a processed output and wirelessly transmits the processed output.

2. The set top box of claim 1 further comprising a switching unit which receives the first TS and the second TS and outputs one of the first TS and the second TS as an output of the switching unit.

3. The set top box of claim 2 further comprising a decoding unit which decodes the output of the switching unit and outputs a decoded TS stream to an image device connected to the set top box by a wire.

4. The set top box of claim 1, wherein the TS converting unit comprises:

a converter, which converts the HD image signal input from outside into the SD image signal and outputs the SD image signal as an output of the converter; and

an encoding unit, which converts the external SD image signal input from outside or the output of the converter into the second TS.

5. The set top box of claim 4, wherein the converter comprises:

an analog-to-digital converter (ADC), which converts the HD image signal input from outside into a digital signal; and

a down converter, which converts the HD image signal converted into the digital signal into the SD image signal.

6. The set top box of claim 3, wherein the wireless processing module wirelessly transmits the processed output in a radio frequency range.

7. The set top box of claim 5, wherein the wireless processing module wirelessly transmits the processed output in a radio frequency range.

8. The set top box of claim 3, wherein the digital television receiver is an advanced television system committee (ATSC) receiver.

9. The set top box of claim 5, wherein the digital television receiver is an advanced television system committee (ATSC) receiver.

10. A method for performing wireless transmission of television signals comprising:

receiving a digital broadcasting signal and converting the digital broadcasting signal into a first transport stream (TS);

receiving at least one of an external high definition (HD) image signal and an external standard definition (SD) image signal, converting the external HD image signal into an internal SD image signal if the external HD image signal is received, and converting one of the internal SD image signal and the external SD image signal into a second TS; and

transmitting one of the first TS and the second TS over a wireless medium.

11. The method as claimed in claim 10 further comprising decoding one of the first TS and the second TS and transmitting a decoded signal to an image device through a wire.

12. The method as claimed in claim 10, wherein converting one of the internal SD image signal and the external SD image signal into a second TS comprises encoding one of the external SD image signal and the internal SD image signal into the second TS.

13. The method as claimed in claim 12, wherein the converting the external HD image signal into an internal SD image signal comprises:

converting the external HD image signal into a digital signal; and

down converting the digital signal into the internal SD image signal.

14. The method of claim 11, wherein the transmitting one of the first TS and the second TS over the wireless medium is done at a radio frequency.

15. The method of claim 13, wherein the transmitting one of the first TS and the second TS over the wireless medium is done at a radio frequency.